IN THE SPECIFICAION:

Please amend various paragraphs within the specification as identified below:

--**[0003]** In one type of prior art single mode fiber, referred to as a "depressed cladding" fiber, the effective refractive index of the cladding material is chosen to be substantially less than the refractive index of the core. In most of these depressed cladding prior art designs, the core region is "up doped" and the cladding region is "down doped" so as to obtain the largest difference in refractive index with the smallest overall fiber diameter. The ratio of the cladding diameter D to the core diameter d, is used in determining various performance parameters of optical fiber made from the perform. For example, to obtain optical fiber having desired transmission characteristics, the D/d ratio should be within an acceptable, but relatively narrow, range of values. ~~The D/d value also affects the cut-off wavelength of the drawn fiber.~~ The single mode cut-off wavelength must also be taken into account in the determination of the appropriate D/d value. The cut-off wavelength is the wavelength ~~above~~ below which the optical fiber behaves as a step-index multimode fiber and ~~below~~ above which behaves as a single mode fiber. Also, the D/d ratio affects the mode field diameter (MFD) which is a measure of the width of the light intensity in a single mode fiber - also referred to as the "spot size". In most cases, it is desired to maintain the ratio D/d less than 2.5 While this value is acceptable for most short wavelength arrangements, long wavelengths (e.g., 1550 nm) cannot be supported in such an arrangement.--

--**[0005]** Therefore, for a pure silica core fiber (such as fabricated by MCVD), the depressed cladding which provides the index difference necessary for a waveguide must be large enough to contain the single mode, while not allowing the energy to leak from the fiber and drastically increase attenuation at the specified wavelength. ~~Thus~~ Furthermore, the perform must be designed to have a cutoff wavelength that is relatively close to the operating wavelength to adequately contain the mode. Further, the depressed cladding material should have a thickness sufficient to contain the operating wavelength mode without suffering from huge bending loss.--

--**[0006]** The present invention addressed the need remaining in the prior art and relates to a single mode fiber for long wavelength (e.g., $\lambda = 1550$ nm) applications and, more particularly, to a single mode fiber comprising a pure silica sore and a relatively thick cladding such that the ratio of the diameter of the cladding (defined is as "D") to the diameter of the core (defined as "d") greater than is approximately 8.5. By "approximately", it is to be understood that the value may be somewhat less than 8.5 (for example, approaching 8) or somewhat greater than 8 (for example, 9 or 10). An upper bound is not critical as long as the desired single mode propagation at relatively long wavelengths is achieved.--

--**[0007]** In accordance with the present invention, the core is formed from pure silica, with a relatively thick cladding comprising fluorine-doped silica. The addition of the fluorine species serves to reduce the effective refractive index of the cladding material with respect to the pure silica core material. Using conventional MCVD processes, approximately 15 ~~30~~ - 90 layers of fluorine-doped silica are deposited within a glass perform tube, with the core material thereafter deposited over the deposited layers of fluorine-doped silica.--

--**[0008]** Advantageously, by forming a pure silica core fiber with such a large D/d ratio, the fiber will be radiation resistant - a necessary feature for some applications, at standard telecommunication operating wavelengths (usually less than 1700 nm). The fiber has also been shown to be hydrogen resistant (i.e., performs well in a hydrogen environment), and therefore, exhibits improved resistance ~~of~~ to the hydrogen-induced loss typically seen in harsh environments ("downhole" fibers, for example).--

--**[0014]** FIGs. 2 - 5 illustrate an exemplary process sequence that may be used to form the long wavelength, single mode fiber of the present invention. The process, as shown in FIG. 2, begins with an exemplary glass tube 20 used to fabricate an optical fiber preform using the well-known "modified chemical vapor deposition" (MCVD) technique. Cladding material 22 is then deposited on the inner wall 24 of tube 22, as shown in FIG. 3. The cladding is deposited in a number of layers so as to form the desired thickness for

the final preform structure. In some cases as many as 15 ~~30~~ - 90 separate layers of fluorine-doped silica will need to be deposited to form the thick cladding region. As mentioned above, the desire is to obtain a D/d ratio of approximately 8.5. The D/d value may be somewhat greater than 8.5, but values larger than (for example) 10 are not considered to further improve the operating characteristics of the inventive fiber. In particular, the number of layers is controlled (in combination with various process parameters) with respect to the predetermined diameter d of the core region to obtain the desired D/d ratio. During processing, if it is discovered that the cladding is too ~~thick~~ thin, an HF etch may be used to remove a portion of the ~~deposited cladding~~ tube material. Depending on the length of glass tube 20, the deposition temperature is preferably within the range of approximately 1920 - 2020 °C. The fluorine-doped cladding is formed from precursors of SiF, O_2, $SiCl_4$ and He. Depending on the equipment used, half of the layers can be deposited in one direction (e.g., from left to right), with the other half then deposited in the opposite direction (e.g., from right to left) so as to "balance" any irregularities in the geometry of the relatively thick deposited cladding material.--

--**[0016]** In an alternative embodiment, a first set of cladding layers (for example, the first 20 - 30 layers) that are deposited may comprise phosphorous (or boron) as well as fluorine, followed by the deposition of "fluorine only" cladding, where the presence of only fluorine will maintain the hydrogen stability, as mentioned above, while not compromising the attenuation of the fundamental mode. Moreover, although MCVD is a preferred techniques for forming the fiber preform, any other technique that ~~also~~ is capable of forming a fiber having the desired D/d ratio may be used, such as OVD or VAD.--